

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: James M. Schreder
Serial No.: 10/729,774
For: INTERACTIVE INSTRUCTIONS IN SEQUENTIAL CONTROL MODULES IN CONTROLLERS
Filed: December 8, 2003
Examiner: Norton, Jennifer L.
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Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
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APPEAL BRIEF FILED UNDER 35 U.S.C. §134

Dear Sir:

Further to the Notice of Appeal filed on October 23, 2008 and to the Notice of Panel Decision from Pre-Appeal Review dated February 24, 2009, the Appeal Brief filed herewith under 35 U.S.C. §134 and 37 C.F.R. §41.37 is from the final rejection of claims 2-5 and 7-15 in a final Office Action dated July 24, 2008 and is filed in triplicate.

(1) Real Party in Interest

The real party in interest is Honeywell International Inc. Ownership by Honeywell International Inc. is established by an assignment document recorded for this application on Reel 0152, Frame 0269.

(2) Related Appeals and Interferences

The undersigned attorney is not aware of any related patent applications or patents involved in any appeal or interference proceeding.

(3) Status of the Claims

Claims 1 and 6 have been cancelled. Claims 2-5 and 7-15 are pending in the application. Claims 2-5 and 7-15 stand finally rejected under 35 U.S.C 103(a) as unpatentable over U.S. Patent No. 5,881,115 to Lipner et al., hereafter referred to as the "Lipner patent", in view of U.S. Patent No. 5,631,825 to van Weele et al., hereafter referred to as the "van Weele patent". Claims 2-5 and 7-15 stand further rejected as obvious over the Lipner patent in view of the van Weele patent or, in the alternative, under 35 U.S.C 103(a) as obvious over the Lipner patent in view of the van Weele patent and in further in view of U.S. Patent No. 4,803,079 to Impink, Jr. et al., hereafter referred to as the "Impink patent".

(4) Status of Amendments

An Amendment under Rule 116 is filed concurrently herewith to amend claim 15 by inserting a comma at the end of line 8 to obviate the Examiner's objection in the final Office Action dated July 24, 2008.

(5) Summary of claimed subject matter

The claimed invention as set forth in independent claims 4, 11, 14 and 15 relates to automated process control in which an operator via a user interface (e.g., a visual display) can interact with the control of a process. With respect to each of the

independent claims, a control system (Figure 8, page 11, lines 5-16) uses sequential control modules, hereinafter referred to as “SCMs”, (Figure 1, page 5, lines 12-24).

In each of the independent claims, the system provides a table view 100 (table view in claims 4 and 15 and display screen in claims 11 and 14) (Figure 1, page 5, line 26) that comprises a plurality of outputs (page 5, lines 19 and 20) of a selected step. In the example of Figure 1 the selected step is step A6 (Open Rx Charge Feed Flow CV 309/3D16). In the examples of Figures 3-6 the SCMs and selected steps are different. The outputs are listed in the rows below the selected step in details area 104 of table view 100 and described at page 7, lines 9-16. The steps comprise a combination of at least one automatic expression and at least one interactive instruction. In the example for a selected step one of Figures 3 and 4, the output in the second output row is an automatic expression (page 9, lines 14 and 15) and the output in the fourth output row is a confirmable instruction (page 9, lines 17-24). A confirmable instruction is an interactive instruction that requires operator confirmation before the procedure can advance to the next output or part of the procedure (page 12, lines 1-17).

Table view 100 further comprises a summary area 102 that provides a name 114 (page 6, lines 14 and 15) of the SCM and a list of steps 118 (page 6, line 16) of the SCM. The selected step A6 is selected from list 118.

Table view 100 further comprises a details area 104 (page 6, line 8) that provides a step name (Open Rx Charge Feed Flow CV 309/3D16) and a step description for the selected step (the outputs listed in the rows below the selected step in Figures 1 and 3-6).

Table view 100 further comprises a parameters area 108 (page 6, line 108) that provides a current value of at least one parameter associated with the selected step (page 8, lines 20-24).

With further respect to independent claims 4 and 15, table view 100 is presented by a user interface component (page 3, lines 7).

With further respect to independent claim 4, an operator station 800 or 802 (Figure 8, page 11, lines 5-16) executes the user interface component and responds to at least one input of an operator for the interactive instruction (Figure 7, box 728 labeled as “confirmed by operator?” and page 10, line 28, to page 11, line 4). A controller 810 is operated by executing the interactive instruction at least partly in response to the operator input and the automatic expression automatically (Figure 7, boxes 710, 712 and 714, page 7, lines 16-18).

With further respect to independent claim 15, a controller 808 or 814 (Figure 8, page 11, lines 5-16) executes the automatic expression automatically and the interactive instruction at least partly in response to one or more inputs of the operator to the operator station (Figure 7, boxes 710, 712, 714, 722, 726, 728, 734 and 736), page 10, line 16, to page 11, line 4).

With further respect to independent claim 11, a computer readable medium has executable instructions stored thereon to perform a method in a control system that uses sequential control modules (page 4, lines 6-9). The method comprises a step of providing a type indication on a display for an instruction in an SCM, the type being confirmable or informational (Figures 1 and 3, confirm column 308 in details area 104, page 7, lines 18-27). The method further comprises a step of receiving a confirmation from an operator before completing the instruction, if the type is confirmable (Figure 7, box 728 labeled “confirmed by operator”, page 10, line 29, to page 11, line 4). At least one of the executable instructions causing an interactive display screen (table view 100) to be presented to an operator.

With further respect to independent claim 11, at least one of the executable instructions causes a determination of whether a current one of the outputs is an

interactive instruction or an automatic expression (Figure 7, boxes 702 and 722, page 10, lines 12 and 13 and lines 23 and 24). At least one of the executable instructions causes, if the current output is an interactive instruction, a determination of whether the interactive instruction has been confirmed by the operator (Figure 7, box 728 labeled "confirmed by operator", page 10, line 28, to page 11, line 1). At least one of the executable instructions causes, if the interactive instruction has been confirmed by the operator, a marking the current output complete (Figure 7, box 734, page 11, lines 2 and 3). At least one of the executable instructions causes, if the current output is an automatic expression, using at least one controller in the control system to execute the automatic expression (Figure 7, boxes 710, 712 and 714, page 10, lines 16-18).

With further respect to independent claim 14, the method comprises the step of presenting an interactive display screen to an operator (table view 100 as described above). A determination is made as to whether a current one of the outputs is an interactive instruction or an automatic expression (Figure 7, boxes 702 and 722, page 10, lines 12 and 13 and lines 23 and 24). If the current output is an interactive instruction, determining whether the interactive instruction has been confirmed by the operator (Figure 7, box 728 labeled "confirmed by operator", page 10, line 28, to page 11, line 1). If the interactive instruction has been confirmed by the operator, marking the current output complete (Figure 7, box 734, page 11, lines 2 and 3). If the current output is an automatic expression, using at least one controller in the control system to execute the automatic expression (Figure 7, boxes 710, 712 and 714, page 10, lines 16-18).

Thus, in the claimed invention when the operator selects a step of an SCM in summary area 102, the outputs of the selected step are displayed in details area 104. The outputs include at least one interactive instruction and at least one automatic expression. This is in contrast to prior systems that comprise separate modes and display views for automatic execution and manual execution, which requires switching from one mode and table view to another, which can be confusing to an operator and

can lead to operator error. This feature is significant because the SCM step can include both automatically executed instructions and manually executed instructions. As set forth in paragraph 4 of the Declaration of James Schreder submitted on September 29, 2008 (hereafter the “Schreder Declaration”):

“The ability to view all of the outputs of a step, whether manual or automatic, is a user friendly feature and very advantageous as it eliminates a need for the operator to switch among several views to achieve interactive control. The feature also allows the flexibility of combining automatic expression with manual instructions into a single procedure with a single table view for operator control and viewing of both the automatic expression and the interactive instructions.”

(6) Grounds of rejection to be reviewed on appeal

The first ground of rejection presented for review is the propriety of the final rejection of claims 2-5 and 7-15 under 35 U.S.C. §103(a) over the Lipner patent in view of the van Weele patent.

The second ground of rejection presented for review is the propriety of the final rejection of claims 2-5 and 7-15 under 35 U.S.C. 103(a) as obvious over the Lipner patent in view of the van Weele patent or, in the alternative, under 35 U.S.C. 103(a) as obvious over the Lipner patent in view of the van Weele patent in further view of the Impink patent.

(7) Arguments

(A) First Ground – independent claim 4 and dependent claims 6-10 stand or fall together. Independent claim 11 and dependent claims 12 and 13 stand or fall together. Independent claim 14 and dependent claims 2 and 3 stand or fall together. Claim 15 stands alone.

(a) Claims 2-5 and 7-15 were rejected under 35 U.S.C. §103(a) over the Lipner patent in view of the van Weele patent. The Final Office Action improperly rejected claims 2-5 and 7-15.

(i) The combination of the Lipner patent and the van Weele patent does not disclose that the table view comprises “a plurality of outputs of a selected step of at least one of said sequential control modules, wherein said outputs comprise a combination of at least one automatic expression and at least one interactive instruction” recited in independent claims 4, 11, 14 and 15.

The Lipner patent lacks a table view as claimed. The Lipner patent discloses a system that includes a supervisory sequential controller interface to an operator for monitoring and/or control of execution of procedures for a process application. The system includes a software component that controls the display of a plurality of plant procedures that can run concurrently according to the software diagrams of Figures 4-14. The display logic is defined by Figure 6 and cycles through the active procedures one procedure at a time on a repetitive basis. The system executes the procedures in two modes: manual or automatic (column 4, lines 13 and 14), but not a combination of both, paragraphs 5 and 7 of the Declaration of James Schreder.

When the procedure is executed in the manual mode, a screen 47 (Figure 3) is presented to the operator. Screen 47 includes buttons 51 for the operator to select the mode of execution of the procedure (column 5, lines 5-8). In area 63, already executed steps 3-5 are listed. In area 65 the current procedure step 6 is displayed. In area 67, the status of relevant plant components and parameters for current step 6 are displayed (column 5, lines 3-67). Upcoming steps 7-9 are displayed in area 69.

In Figure 3, the user has selected the manual mode, which is displayed in space 49. When in manual mode, a “SSCI presents a current step to the operator and verifies

the current conditions as required for certain of the steps. The operator, however, must initiate progression to the next step. In the automatic mode, the SSCI will automatically advance to the next step if the pertinent conditions are verified" (column 4, lines 15-19). While in the automatic mode should the conditions be violated, "the procedure will transfer to a 'violated' mode which requires operator action" (column 4, lines 19-22) or "operator intervention" (column 2, line 34). The language, "operator action" and "operator intervention" means that the operator must intervene in the process by taking physical or manual action to alter the condition of a device, such as turning the device on or off, closing or opening a valve, and the like. The Lipner patent contains no further disclosure of the violated mode, the display screen used for the violated mode or how the transfer is accomplished.

At page 28 of the final Office Action, the Examiner contends that the indication of "violated" next to steps 3, 4, 5 and 6 in Figure 3 teaches to Applicant's claimed limitation of "said outputs comprises a combination of at least one automatic expression and at least one interactive instruction". However, all of these steps are manual steps since Figure 3 discloses a procedure in the manual mode (see box 51 and column 6, lines 6-9) and the above discussion of step 6. There is no disclosure that any of the steps 3-6 is an automatic expression. Therefore, the Examiner's contention is mistaken.

The Lipner patent does contain a teaching of how the manual mode handles a violation. In column 6, lines 6-22, there is described the example of a current manual step 6, which involves checking the conditions of operation of SLKT #4. A time delay is allowed for the conditions to be met and verified (see also Figure 10, box 167). If so verified, the operator interacts with screen 47 to advance to the next step. If the conditions are not satisfied by the end of the time delay, operator action or intervention other than interaction with screen 47 will be required (column 6, lines 17 and 18). When the operator has accomplished closing the HPC, left outside position, and turning on the HPGV-L-1 SLOW MAGNET, screen 47 will verify that the conditions have been met. The operator then interacts with screen 47 to initiate progression to the next step.

Based on this teaching of the Lipner patent, should Procedure A of screen 47 be operating in the automatic mode, the operator will be given the same notice of violation. If after the time delay, the conditions are not satisfied, “then the run mode is set to violated at 179” (column 7, lines 33 and 34, Fig. 10). The software component then returns to the calling function at 181, which is Fig. 7 and ultimately Fig. 6 to continue cycling through the active procedures. The operator will need to physically intervene in the process to close the HPC, left outside position, and turn on the HPGV-L-1 SLOW MAGNET. After this intervention takes place and when the software component cycles through the loop (Figs. 6 and 7) to again execute the code for Fig. 10, screen 47 will verify that the conditions have been met and that the procedure has automatically progressed to the next step. Thus, based on the Lipner patent’s teaching of how a manual mode handles a violation, one skilled in the art would surmise that a violation in the automatic mode would be handled with the same notices to the operator for operator intervention in the process, but with an automatic progression (instead of manual) to the next step when the violation has been fixed.

The Lipner patent lacks “wherein said outputs comprise a combination of at least one automatic expression and at least one interactive instruction”. The Examiner contends that the Lipner patent discloses this recital, citing column 2, lines 27-35, and column 4, lines 19-22 and 55-63. The column 2, lines 27-35, and the column 4, lines 19-22, citations refer to the above noted “violated mode” that is entered if pertinent conditions of a current step of the “automatic mode” are not satisfied. However, the Lipner patent does not disclose or describe that in the “violated” mode screen 47 will present to the user “a combination of at least one automatic expression and at least one interactive instruction” as claimed in independent claims 4, 11, 14 and 15. As noted above in the description of the Lipner patent, it is clear from Figure 10 and accompanying description (column 7, lines 19-38) that what the Lipner patent does is set the run mode to “violated” and display the violated conditions on screen 47 for the operator to intervene in the process. Once the operator has successfully intervened,

the software component automatically advances to the next step without any operator interaction with screen 47. Accordingly, the Lipner patent's use of "operator action" and "operator intervention" refers to the operator physically closing or turning on devices used in the process and not presenting to the operator "a combination of at least one automatic expression and at least one interactive instruction" as claimed in independent claims 4, 11, 14 and 15.

At page 28 of the final Office Action, the Examiner contends that the indication of "violated" next to steps 3, 4, 5 and 6 teaches to Applicant's claimed limitation of "said outputs comprises a combination of at least one automatic expression and at least one interactive instruction". However, all of these steps are manual steps since Figure 3 discloses a procedure in the manual mode (see box 51 and column 6, lines 6-9).

The Lipner patent's deficiency is not supplied by the van Weele patent, which was cited for a different purpose (namely, the selected step being selected from a list). Therefore, the combination of the Lipner patent and the van Weele patent lacks the above noted recital of independent claim 4 and the corresponding recitals of independent claims 11, 14 and 15.

- (ii) The combination of the Lipner patent and the van Weele patent does not disclose "at least one controller that is operated by executing said interactive instruction at least partly in response to said operator input and said automatic expression automatically" recited in independent claim 4 and a corresponding recital in independent claim 15.

At pages 4 and 13 of the final Office Action, the Examiner contends that the Lipner patent discloses this recital, citing column 2, lines 27-35, column 3, lines 58-64 and column 4, lines 19-22 and 55-63. However, as noted above in section 7(A)(a)(i), the Lipner patent lacks the combination of an interactive instruction and automatic expression being displayed in the table view. Lipner's deficiency is not supplied by the

van Weele patent, which was cited for a different purpose. Therefore, the combination of the Lipner patent and the van Weele patent lacks the controller recited in independent claim 4 and the corresponding recitals of independent claims 11, 14 and 15. Thus, independent claims 4 and 15 are unobvious in view of the combination of the Lipner patent and the van Weele patent.

(iii) The combination of the Lipner patent and the van Weele patent does not disclose “at least one of said executable instructions causing a determination of whether a current one of said outputs is an interactive instruction or an automatic expression” as recited in independent claim 11 and in a corresponding recital in independent claim 14.

At pages 8 and 11 of the final Office Action, the Examiner contends that the Lipner patent discloses this recital, citing column 2, lines 27-35, and column 4, lines 19-22. Both of these citations refer to a violation that occurs in the automatic mode that requires operator intervention in the physical process. There is no disclosure in the Lipner patent that a determination is made as to whether a step in the automatic mode is an automatic expression or an interactive instruction. In fact, there is no need for any such determination as the steps in the automatic mode would be automatic expression. There is no disclosure in the Lipner patent of “a determination of whether a current one of said outputs is an interactive instruction or an automatic expression” as recited in independent claim 11 and in a corresponding recital in independent claim 14”. Therefore, independent claims 11 and 14 are unobvious in view of the combination of the Lipner patent and the van Weele patent.

(iv) The combination of the Lipner patent and the van Weele patent does not disclose “at least one of said executable instructions causing, if said current output is an interactive instruction, a determination of whether said interactive instruction has been confirmed by said operator” recited in independent claim 11 and a corresponding recital in independent claim 15.

At page 11 of the final Office Action the Examiner contends that the Lipner patent discloses this recital, citing column 2, lines 27-35, column 4, lines 19-25 and column 6, lines 16-22. The column 2 citation and the column 3 citation refer to a violation that occurs in the automatic mode that requires operator intervention in the physical process. As discussed in section 7(A)(a)(i), there is no disclosure in the Lipner patent that the automatic mode or the violated mode includes an interactive instruction in the table view in combination with the automatic expression. In fact, these citations in describing the violated mode refer to operator intervention in the physical process and not interaction with the display screen. The Examiner refers to column 4, lines 24 and 25 as support for “determining whether said interactive instruction has been confirmed”. However, this citation describes that when an automatic procedure, which contains automatic expression and not interactive instructions, has been completed, it will be placed in a completed mode. This has nothing to do with “a determination of whether said interactive instruction has been confirmed by the operator”. There is no disclosure in column 4 of the above recital of independent claim 11 and the corresponding recital of independent claim 14. Therefore, the Lipner patent does not disclose “a determination of whether said interactive instruction has been confirmed by the operator”. Thus, independent claims 11 and 14 are unobvious in view of the combination of the Lipner patent and the van Weele patent.

(v) The combination of the Lipner patent and the van Weele patent does not disclose “at least one of said executable instructions causing, if said interactive instruction has been confirmed by said operator, a marking said current output complete as recited in independent claim 11 and a corresponding recital in independent claim 14.

At pages 8 and 11, the Examiner contends that the Lipner patent discloses this recital, citing column 4, lines 24 and 25. However, this citation describes that when an automatic procedure, which contains automatic expression and not interactive

instructions, has been completed, it will be placed in a completed mode. This has nothing to do with "if said interactive instruction has been confirmed by said operator, a marking said current output complete". There is no disclosure in column 4 of the above recital of independent claim 11 and the corresponding recital of independent claim 14. Therefore, the Lipner patent does not disclose "if said interactive instruction has been confirmed by said operator, a marking said current output complete". Thus, independent claims 11 and 14 are unobvious in view of the combination of the Lipner patent and the van Weele patent.

For the reasons set forth above, it is respectfully submitted that the rejection of claims 2-5 and 7-15 under 35 U.S.C. 103(a) as obvious over the Lipner patent in view of the van Weele patent is erroneous.

(B) Second Ground – independent claim 4 and dependent claims 6-10 stand or fall together. Independent claim 11 and dependent claims 12 and 13 stand or fall together. Independent claim 14 and dependent claims 2 and 3 stand or fall together. Claim 15 stands alone.

(a) The second ground of rejection presented for review is the propriety of the final rejection of claims 2-5 and 7-15 under 35 U.S.C. 103(a) as obvious over the Lipner patent in view of the van Weele patent or, in the alternative, under 35 U.S.C. 103(a) as obvious over the Lipner patent in view of the van Weele patent in further view of the Impink patent.

The arguments presented in section 7(A) above apply to the final rejection of claims 2-5 and 7-15 under 35 U.S.C. 103(a) as obvious over the Lipner patent in view of the van Weele patent. As stated in Section 7A above on this page, it is respectfully submitted that the rejection of claims 2-5 and 7-15 under 35 U.S.C. 103(a) as obvious over the Lipner patent in view of the van Weele patent is erroneous.

The arguments presented in Section 7A above also apply to the deficiencies of the combination of the Lipner patent and the van Weele patent as well, and are incorporated into this section by reference.

(i) The combination of the Lipner patent, the van Weele patent and the Impink patent does not disclose that the table view comprises “a plurality of outputs of a selected step of at least one of said sequential control modules, wherein said outputs comprise a combination of at least one automatic expression and at least one interactive instruction” recited in independent claims 4, 11, 14 and 15.

At page 16 of the final Office Action the Examiner admits that neither the Lipner patent nor the van Weele patent discloses or teaches a display of a combination of at least one automatic expression and at least one interactive instruction. The Examiner contends that the Impink patent teaches a display (citing column 6, lines 43-51, column 15, line 67, column 16, lines 1-5 and element 27 of Fig. 1) of a combination (citing Table II) of at least one automatic expression (citing column 13, lines 59-62 and column 14, lines 51-56 and 59-65, and at least one interactive instruction (citing column 14, lines 47-50 and 56-59).

The Examiner's citations do not demonstrate that the Impink patent discloses or teaches a display of any automatic expression. Table II is a record or history of the Reactor Trip or Safety Injection procedure E-O (column 14, lines 23 and 24). This record has been generated by the data logger 53 of Figure 1 and provides the time that each individual step or substep in procedure E-O was “executed by the operator” (column 14, lines 19-22). Table II is not displayed by display 27, but rather a permanent copy can be generated by a printer or a tape unit connected to the computer (column 13, line 66, to column 14, line 2). However, Table II does provide a record of the status of the steps/substeps of procedure E-O (column 14, line 21), of which a current step 7 and its substeps are displayed in the display screens of Figure 3.

The Examiner's column 13, lines 59-62, citation merely states that the user is not burdened with remembering whether a parameter of component should be checked because the system does it for him. This citation supports the collection of sensed data by the system, but does not teach that an "automatic expression" is displayed on a display screen to the operator. It is noteworthy that the "user remains in control at all times. The system gathers data, analyzes conditions of interest and suggests action, but only the operator implements the action" (column 9, lines 51-54). Therefore the Examiner's column 13 citation does not support that the Impink patent teaches the display of an automatic expression.

The Examiner's column 14, lines 51-56, citation is expanded to lines 47-56 in the additional argument set forth at page 32 of the final Office Action. At lines 47-51 there is a description of the prompts that are given to a user to interact with the display screen by entering an O to override a required action. This is not an automatic expression, but rather is an interactive instruction. See column 9, lines 41-62 for a complete discussion of the user prompts. Column 14, lines 51-56, notes that some substeps do not require operator action but indicate whether a particular condition exists or not, referring to the first substep (AFW PUMPS NOT RUNNING) of current step 7 displayed on the display screen of Figure 3. This first substep checks if the turbine driven pump is on and reports that status. Column 14, lines 59-65, notes that the second substep of step 7 determines whether it is necessary to have the turbine driven pump A on. However, in the display screen of Fig. 3, the second substep is displayed as the statement, "MOTOR DRIVEN AFW PUMP A NOT RUNNING". This statement is an informational statement and not an automatic expression. The operator is not informed of the other analyzed status data (-2) set forth in the log record of Table II. The first and second substeps display status and correspond to informational instructions as described in Applicant's specification at page 9, lines 12 and 13. These substeps report status, but do not reflect automatic expression. Accordingly, the first and second substeps of step 7 are not automatic expressions, but rather are informational statements that require no action and that report status.

The column 14, lines 47-50, citation does not demonstrate that the third substep of step 7 is an interactive instruction as contended by the Examiner. Like the first and second substeps, the third substep is an informational statement that reports status on the display screen. That is, the third substep is shown on the display screen as "MOTOR DRIVEN AFW PUMP B NOT RUNNING". Therefore, the third substep is not an interactive instruction.

It is noted that the fourth substep (MANUALLY START PUMPS) of step 7 is displayed on the display screen. The fourth substep is a command for the operator to intervene in the process by starting the pumps. The status result of the fourth substep is not set forth in the log record of Table II. The prompts in display area 79 tell the user what he must do to interact with the system (column 9, line 43-44) and prompt the operator to enter a C when the pumps have been started or an O to over ride the command. Clearly, the fourth substep is an interactive instruction in that the operator must take action and then interact with the display screen.

For the reasons set forth above, the Impink patent does not disclose or teach the display in a table view of the combination of at least one automatic expression and at least one interactive instruction. Accordingly, the combination of the Lipner patent, the van Weele patent and the Impink patent does not disclose or teach the display in a table view of the combination of at least one automatic expression and at least one interactive instruction as recited in independent claims 4, 11, 14 and 15.

For the reasons set forth above, it is respectfully submitted that the rejection of claims 2-5 and 7-15 under 35 U.S.C. 103(a) as obvious over the Lipner patent in view of the van Weele patent and further in view of the Impink patent is erroneous.

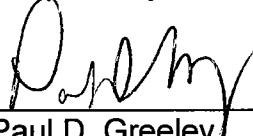
(C.) Conclusion of Arguments

Accordingly, it is respectfully submitted that the Lipner patent in combination with either the van Weele patent or with the van Weele patent and the Impink patent do not disclose or suggest independent claims 4, 11, 14 and 15. Appellants therefore respectfully request that the Board of Appeals reverse the final rejection of claims 2-5 and 8-15.

Summary

In summary, Appellants respectfully request that the Board of Appeals reverse the final rejections of claims 2-5 and 7-15, thereby enabling all of the pending claims to be allowed.

Respectfully submitted,



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(8) Claims Appendix

Claims 2-5 and 7-15, herein on appeal, are set forth below.

1. (Canceled)
2. (Previously presented) The method according to claim 14, further comprising:
determining whether said current output is an information type; and
marking said current output as complete, if said current output is said information type.
3. (Previously presented) The method according to claim 14, further comprising:
after the executing step, storing a value of said automatic expression to a destination reference.
4. (Previously presented) A control system that uses sequential control modules, said control system comprising:
a user interface component that provides at least a table view, said table view comprising:
a plurality of outputs of a selected step of at least one of said sequential control modules, wherein said outputs comprise a combination of at least one automatic expression and at least one interactive instruction,
a summary area that provides a name of said sequential control module and a list of steps in said sequential control module, wherein said selected step is selected from said list,
a details area that provides a step name and a step description for said selected step, and
a parameters area that provides a current value of at least one parameter associated with said selected step;

an operator station that executes said user interface component and that responds to at least one input of an operator for said interactive instruction; and at least one controller that is operated by executing said interactive instruction at least partly in response to said operator input and said automatic expression automatically.

5. (Previously presented) The control system according to claim 4, further comprising:

a journaling component capable of being executing on said operator station for recording information related to the execution of said sequential control module.

6. (Canceled)

7. (Previously presented) The control system according to claim 4, wherein said table view further comprises:

an additional details area for information associated with said selected step.

8. (Previously presented) The control system according to claim 4, wherein said table view further comprises:

a trend area that provides a graph of said at least one parameter associated with said selected step.

9. (Previously presented) The control system according to claim 4, wherein said details area includes a confirmation component to receive a confirmation from said operator.

10. (Previously presented) The control system according to claim 4, wherein said user interface component also provides a sequential function chart view.

11. (Previously presented) A computer readable medium having executable instructions stored thereon to perform a method in a control system that uses sequential control modules, said method comprising:

providing a type indication on a display for an instruction in a sequential control module, said type being confirmable or informational; and

receiving a confirmation from an operator before completing said instruction, if said type is confirmable

at least one of said executable instructions causing an interactive display screen to be presented to an operator that displays:

a plurality of outputs of a selected step of at least one of said sequential control modules, wherein said outputs comprise a combination of both automatic expression and at least one interactive instruction,

a summary area that provides a name of said sequential control module and a list of steps in said sequential control module, wherein said selected step is selected from said list,

a details area that provides a step name and a step description for said selected step, and

a parameters area that provides a current value of at least one parameter associated with said selected step;

at least one of said executable instructions causing a determination of whether a current one of said outputs is an interactive instruction or an automatic expression;

at least one of said executable instructions causing, if said current output is an interactive instruction, a determination of whether said interactive instruction has been confirmed by said operator;

at least one of said executable instructions causing, if said interactive instruction has been confirmed by said operator, a marking said current output complete; and

at least one of said executable instructions causing, if said current output is an automatic expression, at least one controller in said control system to execute said automatic expression.

12. (Previously presented) The computer readable medium according to claim 11, further comprising:

at least one of said executable instructions causing at least one value of a parameter to be associated with at least one of said outputs on said display screen.

13. (Previously presented) The computer readable medium according to claim 11, further comprising:

at least one of said executable instructions causing additional information about said current output to be displayed on said display screen.

14. (Previously presented) A method of providing interactive control in a control system that uses sequential control modules, said method comprising:

presenting an interactive display screen to an operator that displays:

a plurality of outputs of a selected step of at least one of said sequential control modules, wherein said outputs comprise a combination of at least one automatic expression and at least one interactive instruction,

a summary area that provides a name of said sequential control module and a list of steps in said sequential control module, wherein said selected step is selected from said list,

a details area that provides a step name and a step description for said selected step, and

a parameters area that provides a current value of at least one parameter associated with said selected step;

determining whether a current one of said outputs is an interactive instruction or an automatic expression;

if said current output is an interactive instruction, determining whether said interactive instruction has been confirmed by said operator;

if said interactive instruction has been confirmed by said operator, marking said current output complete; and

if said current output is an automatic expression, using at least one controller in said control system to execute said automatic expression.

15. (Currently amended) A control system that uses sequential control modules, said control system comprising:

an operator station that comprises a user interface component that provides a display to an operator and a program that runs on said operator station an interactive procedure to present on said display a table view comprising:

a plurality of outputs of an operator selected step of at least one of said sequential control modules, wherein said outputs comprise a combination of at least one automatic expression and at least one interactive instruction,

a summary area that provides a name of said sequential control module and a list of steps in said sequential control module, wherein said selected step is selected from said list,

a details area that provides a step name and a step description for said selected step, and

a parameters area that provides a current value of at least one parameter associated with said selected step; and

a controller that executes said automatic expression automatically and said interactive instruction at least partly in response to one or more inputs of said operator to said operator station.

(9) Evidence Appendix

None.

(10) Related Proceedings Appendix

None.